DOCUMENT RESUME

ED 034 996 AL 002 250

AUTHOR Afendras, Evangelos A.
TITLE Sociolinguistic History, Sociolinguistic Geography and Bilingualism.
PUB DATE Sep 69
NOTE 35p.; Paper presented at the International Days in Sociolinguistics, Istituto Luigi Sturzo, Rome, September 14-17, 1969

EDRS PRICE EDRS Price MF-$0.25 HC-$1.85
DESCRIPTORS *Bilingualism, Culture Contact, *Diachronic Linguistics, Diglossia, Interference (Language Learning), Language Role, Language Usage, Mathematical Models, Migration Patterns, *Sociocultural Patterns, *Sociolinguistics
IDENTIFIERS Macedorumanians

ABSTRACT

An attempt is made to develop a method for the presentation of temporal and spatial sociolinguistic data in order to study phenomena of bilingual interaction. Domain of language usage and other sociocultural variables are abstracted from extant sources, normalized and compared with the aim of studying sociolinguistic variation, its reflection on stability of language distribution and the relation of the latter to convergence processes in the languages in contact. The possibility of applying sociological-geographic models for the diffusion of innovation to linguistic diffusion is investigated. The case of the Macedorumanian nomads in the Balkans is used to illustrate the method. (Author/DO)

ED034996

SOCIOLINGUISTIC HISTORY, SOCIOLINGUISTIC GEOGRAPHY AND BILINGUALISM

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

by **Evangelos A. Afendras**
International Center for Research on Bilingualism

AL 002 250

Paper presented at the
INTERNATIONAL DAYS IN SOCIOLINGUISTICS
Istituto Luigi Sturzo
Rome, September 14-17, 1969

SUMMARY

An attempt is made to develop a method for the presentation of temporal and spatial sociolinguistic data in order to study phenomena of bilingual interaction.

Domain of language usage and other sociocultural variables are abstracted from extant sources, normalized and compared with the aim of studying sociolinguistic variation, its reflection on stability of language distribution and the relation of the latter to convergence processes in the languages in contact.

The possibility of applying sociological-geographical models for the diffusion of innovation to linguistic diffusion is investigated.

The case of the Macedorumanian nomads in the Balkans is used to illustrate the method.

TABLE OF CONTENTS

Summary
0. Introduction. 1. Bilingualism and language change. 2. Areal convergence. 3. Sociolinguistic dimensions of language convergence. 4. Sociolinguistic matrices, location in time and space. 5. Diachronic and diatopic presentation. 6. Some diachronic-diatopic work in Sociolinguistics. 7. Nature of sociolinguistic and linguistic data on the Macedorumanians. 8. In search of a model: social diffusion and geographic migration. 9. Conclusions. Additional notes, tables, matrices, bibliography.

0. Introduction

Recent and less recent literature have extensively covered the topic of bilingualism and its role in language change, as well as the necessity of introducing sociolinguistic variables into the analysis of both. On the other hand, detailed sociolinguistic studies are mostly oriented towards the investigation of sociolinguistic change, and especially language maintenance or shift, so that not much exists on sociolinguistic geography. What I will attempt to do in this paper, is a synthesis of the sociolinguistic and linguistic notions of bilingualism and their interaction in time and space, which precipitates language change. Possible models, some of them mathematical, used in sociological research of diffusion, will also be discussed for possible application to the study of language diffusion.

1. Bilingualism and language change

By bilingualism is understood here the acquisition by a speaker of elements of language other than his mother tongue; under language contact I include dialect contact, as well as register or style or any such contact, determined by the topic or the situation. The three fold distinction as to bilingual ability proposed by Diebold (1961) will be tentatively kept. Bilingualism will be distinguished into incipient, subordinate and coordinate. As the information used for my illustrations derives from documents which antedate Diebold's studies by several decades, vague impressionistic statements will be converted into Diebold's three fold distinction according to the following scheme:

a) "speaks language X poorly" = incipient bilingualism.
b) "speaks perfect (language) X in addition to his mother tongue Y" = coordinate bilingualism.

c) as subordinate would be classed the bilinguals making up the difference of the total population after a and b; also those said to speak "some of language X in addition to their mother tongue Y".

I accept with Haugen (1956) and Diebold the three stage influence of one language upon another through the bilingual individual.

1. Code switching: "The alternate use of two languages".

2. Interference: "The overlapping of two languages".

3. Integration of interference: "The regular use of material from one language in another", which should occur also in the speech of monolingual individuals.

2. Areal convergence

The Prague linguists and notably Jakobson (1931, 1938, 1944) and Trubetzkoy (1928) studied areas in which several languages in close and protracted contact (through large bilingual groups), within a restricted geographical space, tend to share a high number of linguistic traits, not necessarily inherited from a parent speech. In many cases the languages are not genetically related at all. The traditional examples are from the Balkans, India, the Caucasus and also North America. The studies by Trubetzkoy and Jakobson's early work were concerned mostly with the linguistic description of features typical of certain such language areas (in the Prague terminology Sprach bünde). This was

also the case with the works of the American anthropologists and linguists, Boas and Sapir. Comparatively recently the sociolinguistic aspects of multilanguage convergence were touched upon by Emeneau in two articles (1956, 1961), where both the linguistic traits, the convergence process and some of the social factors that must have brought it about were outlined. Before this study of Areal Convergence we have, of course, Weinreich's basic exposition in Languages in Contact (1953), as well as numerous later contributions (1957, 1958 etc.)

3. The sociolinguistic dimensions of language convergence

The cases studied by Emeneau (1956, 1961) were from India and Pakistan. Among recent linguistic studies of convergence should be mentioned Širokov (1964), Kazazis (1964, 1967) and Birnbaum (1966, 1968, 1969), of which the last two have proposed a transformational treatment. Measures of phonological convergence (Jakobsonian distinctive feature analyses, phoneme distribution) were proposed by Afendras (1968, 1969b, 1969c). An early attempt at an exposition of the sociolinguistic aspects of Balkan convergence was outlined in Afendras (1969d), in which the work of Emeneau and others were briefly discussed.

Emeneau (1961) first exposes the linguistic convergence between Brahui and Beluchi in Beluchistan, then investigates the social side of Brahui-Beluchi interaction, specifically the relative prestige of the two languages, political power distribution between the two ethnic groups, intermarriage practices (e.g. extent of exogamy), child language acquisition, bilaterality of bilingualism (that is extent to which bilinguals are drawn from both monolingual pools), and distribution of the two languages by social context.

4. Sociolinguistic matrices, location in time, space

Since the time of Emeneau's study, several detailed and rigorous works on sociolinguistics and bilingualism have appeared(1). The sociolinguistic method can be very helpful even for the historical analysis of linguistic convergence, as it exposes the ongoing process of interference, first phase of convergence. These studies have pointed-out the importance of understanding the social structure and the relationship between the two groups involved. Within monolingual groups, distribution of dialects or subdialectal varieties according to sociolinguistic context, for instance, domains of usage -- or attitudes of the code users towards the languages employed are keys to change phenomena. The concept of diglossia was early introduced by Ferguson to describe a situation in which two closely related languages were employed in a certain strict distribution over domains of daily usage and with some concomitant attitudes towards the two languages. Fishman (1967) extended the term to cover all cases in which two language codes are used in non-overlapping domains, irrespective of the linguistic distance between these codes. Starting from this notion, Fishman also defined a notion of stable bilingualism. The following social variables have been isolated by the various researchers as sociolinguistically pertinent: social class, age, sex, occupation, religion, political affiliation, education and place of origin. As domains of use we have: the home, the locale, the school, the work, religious worship, the neighborhood, etc.

(1) See in bibliography works of Weinreich, Diebold, Ferguson, Fishman, Gumpers, Haugen, Rubin, etc.

Naturally, some of these are more pertinent in some cases than in others. In the particular example which I will be using, that of the Macedorumanian nomads in the Balkans, age, sex, profession, religion, political affiliation, as well as transactions with the state authorities are important. Language use for each ethnic groups, domain and role -- relationships have to be specified. In the case where the extant sources provide some possibility for statistical estimates, such estimates will be given. The information will be presented in matrices, which start from the most general, with ethnic group and language on the axes; these can be gradually "blown up" for their sub-sections to include greater detail. Ethnic group, particular place (such as city or village concerned),as well as chronological time (1912, 1850, etc.) and state in power (e.g. Ottoman Empire, Yugoslav State) should be indicated. The first blown up matrices will include the larger categories into which domains are grouped, with the languages used in each of them. (See for example the matrices that follow on pages 24 ff.). In the third matricial representation of greater resolution, will be given one domain with its sub-domains or the role relationships within it, and on the other axis, the languages used. The source from which the information was extracted should always be indicated. Incidentally, this particular coding will be used for information extracted from extant sources of a historical, geographic, ethnological, anthropological, political, and other nature, which provide the desired information accidentally. Possible matrices with information have been constructed by screening a limited number of sources and are given in the appendix for illustration purposes. As an example of roles within a domain, we will take home. On the different cells of a row will be indicated the language used for a particular row, such as shown along the cells of each column. For the domain of home, then, we have the roles of father-mother, father-child, mother-child,

child-child, and the reverse where pertinent, such as child-mother, child-father, and mother-father (2). The domain of religion will have to yield the particular religion, such as in our case, moslem, jewish, christian orthodox or catholic, orthodox patriarchate, as opposed to orthodox exarchate, and then within each of those a breakdown by role relationship such as priest-people (language of the sermon) or language of the ritual part of the service (priest-God ?).

5. Diachronic and diatopic presentation

Most of the studies that have been done so far along the sociolinguistic vein investigate language change as reflected in synchronic sociolinguistic processes. Few of them have really been diachronic over large increments of time and none has been along the lines of linguistic geography. (We can call such studies monotopic and monochronic.) The above presentation paralleled by an equal presentation of the linguistic facts in matricial or any other form (e.g. the geographic convergence study by Afendras, 1968, 1969b), can be used to find the covariance or correlation between the sociolinguistic variables and the linguistic changes. We can then take from the sociolinguistic matrices, the same cell across different points in space, or the same cell across different points in time. We can, for instance, follow changes in the language of transaction with the authorities, or in the language of religion, or in the language distribution and usage at home. A geographical distribution can be accompanied by texts from the different domains (or if not available, any texts that are available) and with measures of interference or integration of elements of another language. Of course, breakdown by domain

(2) Instances of linguistically asymmetric role-relationships are quite common.

for the text samples would be highly desirable, as we know that interference varies with domain(3). A detailed analysis of the type of linguistic interference such as the type of loaning (translation, shifting, direct loaning etc.) or interference on the other linguistic levels can then be directly correlated with the sociolinguistic dimensions.

6. Some diachronic-diatopic work in Sociolinguistics

Emeneau (1961) took into consideration several of the sociolinguistic factors in his diachronic study of Beluchistan and at the same time information from the India census which he used for statistical calculations of bilingualism incidence. He did not attempt,however , a detailed diachronic sociolinguistic study. Rubin's work on Paraguay concerned the sociolinguistic component but did not attempt a joint study of the sociolinguistic and linguistic aspects. She did though present some sample texts and an analysis of the Guaraní Spanish elements in them, as well as the Swadesh basic list in Guaraní, with its Spanish loanwords.

The work of Sheldon Klein (1966, 1969), represents a pioneer effort in synthesizing the socio-demographic and linguistic aspects of language change and bringing it to the "laboratory". His computer simulations reproduce conditions in a small community (communication networks, events such as birth, death and marriage) and with a stochastic model

(3) Mackey (1962:69), Ma and Herasimchuk (1968:645).

"predict" language change towards a certain equilibrium (choice of particular syntactic rules.)

7. Nature of sociolinguistic and linguistic data on the Macedorumanians

As mentioned above (section 5), several works of diverse nature are available, which give accidental information on the sociolinguistics of the Macedorumanian nomads in the Balkans. As illustrated in the present paper, this information can be coded in rather fashionable attire, in spite of its extraction from works of respectable age. For data on linguistic variation across space, there are available studies of the local dialects, although in a rather difficult form (4). The Macedorumanians, speaking a language akin to Rumanian, (considered by some scholars merely a Sub-Danubian dialect of Rumanian) were, until very recently, sheep-herding nomads living in the central Balkans. From their semi-permanent mountain villages, (on Pindus, Gramos etc.) they migrated seasonally to the plains (mostly in what is now Greek, Albanian, and Yugoslav Makedonia, where they spent the fall, winter and spring months. During these migrations they came into contact with the other populations in the plains. As soon as the weather permitted, they returned to their mountain villages, where they spent some of the spring, summer and fall months. Their contacts with the other populations took place during numerous religious festivals in some of the

(4) See works of Weigand, Capidan, Caragiu-Marioţeanu etc.

cities neighboring their areas. Their commercial transactions with the surrounding populace were intensive and centered around the marketing of their products, such as cheese, sheep, blankets and related items manufactured in their villages. Muleteering throughout the Balkans was also in their hands since the 6th Century A.D. (Wace and Thomson, 1914-256) and thus they were in constant contact with the other ethnic groups. From early times, quite a few Macedorumanians settled in many of the Balkan cities, notably Salonica, Prizren, Skopia, even as far south as Athens. Numbers of them also immigrated to Rumania, and far away central and east European countries(5). Their traditional routes of nomadic migration, as well as the intensity of the contacts and the time spent in the areas where they migrated, have been documented with various degrees of accuracy and clarity. Due to historical changes in the Balkans in this century, their ecology and their pattern of life have been upset completely and now after rapid acculturation to the dominant states and cultures between which they have been divided, they are disappearing. Where before within the borders of the Turkish state they could migrate across plains and mountains, fragmentation of the Balkans into the sovereign states of Greece, Bulgaria, Albania and Yugoslavia has raised impassable political frontiers before their nomadic moves. Moreover, the trend towards ubarnization and industrialization in the Balkan

(5) In the recent decades a strong migratory current to America has developed, with the Massachusetts area as the main target.

states has attracted many of them to the cities where acculturation is always more rapid.

The most important sociolinguistic components for the study of the Macedorumanians are those of religion, sex, profession and locale. The role of their women in preserving the paternal language and customs has been stressed repeatedly in scholarly works this and last century. Therefore, the study of their intermarriage patterns (endogamy-exogamy) is most important for understanding their past and future acculturation process, and more specifically their language maintenance. Furthermore, since their particular professions were what determined contacts with the outside communities of Greek, Slavic or Albanian speakers, occupation must form an important component of the Macedorumanian sociolinguistic matrix. As during the Turkish domination, religion was the one factor of classification of non-Turkish subjects, national or linguistic criteria played a very small role until last century. With the Macedorumanians this situation continued well into the 20th century and religion was what determined their exogamic practices. Before language and ethnic awareness, the intimate connection between religion and education in the Balkans in much of their history added to the forces of acculturation. This pattern changed only recently.

8. In search of a model: social diffusion and geographic migration

The nature of the subject suggests the application of a certain type of mathematical model that has been often used in sociological research. Namely the models for the study of diffusion of innovation, both along space and within

a social structure,and the migration models seem quite appropriate.

The early models utilised in studies of social diffusion were based on a simple theory of mechanical contagion, similar to the models for the spread of epidemics. It is obvious that social diffusion,and even more so linguistic diffusion require much more complex models.

Among the most successful attempts at a mathematical model of diffusion, lies the work of Rapoport. In the early stages, Rapoport used a very simple situation. He assumed a collection of individuals distributed in an amorphous social space. A message of unspecified content is introduced and then communicated by one individual to another in a totally random fashion. No structure is assumed whatsoever for this social group, no obstacles and no networks of communication. Gradually, such conditions (obstacles etc.) are introduced, which complicate the model and approximate reality closer. It should be stressed that Rapoport's model is inductive in that observations of actual diffusion served to make the theoretical adjustments to his model. The following are some of the restrictions introduced to the free model outlined above. First, that an individual belongs to a group within which he makes all his contacts. (This condition will have to be changed in our case as what really interests us is the contact with individuals belonging to another group.) Next, a hypothesis is made that the number of group members is much higher than the contacts an individual can make. Other conditions are gradually introduced, such as the probability of an individual having been informed (contacted) by a certain time -- through another individual; the probability of the latter having been informed prior to the time of the contact, and so on. In our particular instance, the Macedorumanian nomads

or any other instance of linguistic diffusion(6). Additional restraints would have to be introduced, reflecting structural resistance, "holes in the pattern", Sapir's "drift" or any other purely linguistic forces at work (Klein, 1966:67, 68).

In this particular case study, some way would have to be devised to represent the periodic contacts of the Macedorumanians or any other group with the group speaking the "other language", as well as the intensity of these contacts. This introduces a new dimension and social models exist which can be immediately applied. The new dimension is the distance to the different areas to which the Macedorumanians migrated periodically (see map of nomadic migrations in appendix). The social or geographic models to be considered can be utilised in two ways. First, for the migration itself, then for the probability of mutual influence among the languages in contact. The following is an illustration with the simplest such model available. The model was proposed by Zipf and is one of the least known among linguists, although geographers and sociologists are quite familiar with it(7). Zipf proposed that the amount of interaction between two cities is proportional to $\frac{P_1 P_2}{D}$, where P_1 and P_2 represent the populations of the two cities and D represents the closest distance after consideration

(6) Simple tests of the model can examine the spread of particular slang or other technical words within a group or across groups.

(7) It seems that the hypothesis was formulated originally long before Zipf, in 1858 (Olsson, 1965:44).

of all means of transportation. This model is not very powerful as it does not take into consideration any of the social, economic or administrative factors. However, it can be used as a starting point, in modeling the language distance factor for incorporation into the linguistic diffusion model. P_2 in this case could represent number of phonemes or number of words in a lexicon, or any such unit. Of course, the difficulties involved in this particular application because of the structural relationships in language are even more severe than those involved in the application of the model to the study of migration. A more successful model was proposed by Stouffer, (1940, 1960) in which the process is examined in terms of migration of opportunities available to the migrant, according to both geographic distance and his membership in a particular social class. This model is mathematically extremely simple(8). Finally, a very ingenious model displays qualities which would render it applicable to linguistic studies. It was first proposed by Hägerstrand in a simulation of diffusion of particular cultural items in an area in Sweden based on density of communication between different points in this geographic area. Hägerstrand divides his area into geographic cells for which density of population and communication was defined on the basis of frequency of telephone calls across different points and migratory movements of the population.

(8) In general lines, Stouffer proposed that the number of people migrating a certain distance is proportional to: $\frac{\text{opportunities available at that distance}}{\text{opportunities available within a lesser distance.}}$

Thus probability of contact between the different cells could be calculated.

In his later models Hägerstrand introduced additional considerations such as, unevenness in their population distribution, as well as a variety of influences and physical obstacles. The above models can be applied to a study of linguistic diffusion in cases like that of the Macedorumanians but also in any other case of multilingual setting in several ways, first of all purely for the study of linguistic diffusion as an innovation, second for the study of the populations which are involved and their migratory patterns, and third it can be applied in a rather metaphorical sense to the study of the vocabularies. In other words, we can apply the migration model but this time its units would take not human individuals but words. Here, instead of two ethnic groups with social sub-groups, obstacles, etc., we have two word populations, (that is, the lexicon of the two languages in contact), with their existing sub-structures of words definable by center of interest or word class, and so on. (This again is analogous to social structure in which classes do enter in complex inter-relations.) A loan then would be an "individual" migrating into the other population of words, entering another group and being integrated into it. This model can be incorporated into the sociodemographic model and tested with real data. As opportunities we can define the cultural distance between the two groups in contact. In the specific example of the Macedorumanians, we can study via the preceding sociolinguistic analysis, the domains, topics, and roles in which code switching onto Greek, or Slavic, or Albanian occurs. From these centers of interest so defined and lexical sub-structures that are related to them, we can thus derive an index of opportunity for loan-words into this particular center of interest. As data, we can use loan-words in two languages in contact as for instance, English and

French in Canada, Macedorumanian and Greek in the Balkans, etc. Creole languages can also be analyzed in this particular way. We can perhaps derive a function over-time saturation of the lexicon of one language with words of another language, the two languages being in contact.

9. Conclusions

In this paper, different methods of analysis of contact situations and diffusion models have been reviewed. These can be studied further and combined into an overall model of language contact and language convergence resulting from bilingualism. The various dimensions such as, linguistic structure, socio-linguistic distribution, space and time can be incorporated into the study of ongoing processes, as well as prediction future and historical, that is, reconstruction of past sociolinguistic situations.

10. Additional notes

1. Years of "contact" and possible points for word transfer in the two lexicons (corresponding to the quotation "opportunities" in the migration model) will be defined by a careful analysis of the language distribution by domain: this will pinpoint the topic - listener - speaker interaction and will enable us to assign the opportunity values.

2. Models of multilingual communication in under-developed and other communities, based on the above exposition can be used in language planning policy, as they can calculate or define the communicative efficiency on the social and national level of particular linguistic codes.

BIBLIOGRAPHY

For a more complete Bibliography on Balkan linguistic convergence, see Afendras (1968, 1969b).

1. Afendras, Evangelos A. 1968 The Balkans as a Linguistic Area: A Study in Phonological Convergence. Unpublished Ph.D. Dissertation. The Johns Hopkins University, Baltimore.

2. _____ 1969a Stability of a Bilingual Situation and Arumanian Bilingualism. Paper read at the annual meeting of the Canadian Linguistic Association, Toronto, June 1969.

3. _____ 1969b Mathematical Models for Balkan Phonological Convergence. Paper prepared for the Third International Conference on Computational Linguistics, Sånga-Säby, Sweden, September 1-4, 1969. (Preprint No. 56 of papers).

4. _____ 1969c Quantification of Balkan Phonological Distribution. Paper prepared for the second annual meeting of the Societas Linguistica Europaea, Vienna, September 6, 1969.

5. _____ 1969d On Bilingualism and Language Structure: a Review, a Case, a Synthesis, Culture, Vol. 30, Nº 4, December 1969, pp. 310-322.

6. Birnbaum, Henrik 1966 On Typology, Affinity, and Balkan Linguistics. Zb. za filologiju i linguistiku. IX 17-30. Novi Sad.

7. _____ 1968 Slavjanskije jazyki na Balkanax i ponjatije tak nazyvajemyx jazykovyx sojuzov. Glossa, Vol. 2-1, 70-92.

8. _____ 1969 Deep Structure and Typological Linguistics. Unpublished manuscript.

9. Blanc, Haim 1964 Communal Dialects in Baghdad. Harvard Middle Eastern Monographs. X. Cambridge, Mass.

10. Boudon, Raymond 1967 L'Analyse mathématique des faits sociaux. Pan's, Plon (Recherches en sciences humaines, No. 21) especially Ch. 8, "Processus sociaux: modèles d'analyse particuliers."

11. Bright, William (ed.) 1966 Sociolinguistics. Mouton, The Hague.

12. _____ 1966a Introduction: the dimensions of sociolinguistics. In Sociolinguistics, W. Bright (ed.), Mouton, The Hague 11-15.

13. Caragiu-Marioţeanu 1964 Phonologie aroumaine. Revue Roumaine de Linguistique, IX, 534-547.

14. _____ 1968 Fono-Morfologie Aromână: Studiu de Dialectologie Structurală, Bucureşti.

15. Civ'jan, T.V. 1966 Imja sušcestritel'noje v balkanskix jazykax (:k strukturno-tipologičeskij xarakteristike balkanskogo jazykovogo sojuza). Moscow, Akademija Nauk.

16. Diebold, A. Richard 1961a Incipient Bilingualism. Lg. 27: 97-112.

17. _____ 1961b A Laboratory for Language Contact. AL.

18. Emeneau, M.B. 1956 India as a Linguistic Area. Lg 32: 3-16.

19. _____ 1962 Bilingualism and Structural Borrowing. Proceedings of the Americal Philosophical Society. 106.5: 430-442.

20. Ferguson, C. 1959 Diglossia. Word 15: 325-340.

21. Fishman, Joshua 1966 Language Loyalty in the United States. Mouton, The Hague.

22. _____ 1967 Bilingualism With and Without Diglossia; Diglossia With and Without Bilingualism. Journal of Social Issues, Vol. 23, 29-38.

23. _____ 1968 Bilingualism in the Barrio. (2 Vols.) U.S. Dept. of Health, Education and Welfare.

24. Gołąb, Z. 1959 Some Arumanian-Macedonian Isogrammatisms and the Social Background of their Development. Word 15.415-435.

25. Gumperz, John E. 1966 On the Ethnology of Linguistic Change. In Bright 1966: 27-49 (incl. discussion.)

26. _____ 1967 On the Linguistic Markers of Bilingual Communication. Journal of Social Issues, Vol. 23.48-57.

27. Hägerstrand, Torsten 1965 A Monte Carlo Approach to Diffusion. Archives européennes de sociologie, 6.43-67.

28. Haugen, Einar I. 1953 The Norwegian Language in America: a Study in Bilingual Behavior, 2 Vols. (Philadelphia, University of Pennsylvania Press.)

29. _____ 1956 Bilingualism in the Americas: a Bibliography and Research Guide. (The American Dialect Society, University of Alabama.)

30. _____ 1957 Language Contact. Proceedings of the VIII International Congress of Linguists, 1957, 771-785.

31. _____ 1966 Introduction to Fishman 1966.

32. Hymes, Dell H. 1967 Models for the Interaction of Language and Social Setting. Journal of Social Issues, Vol. 23.8-28.

33. Jakobson, R. 1931 Kxarakteristike ǰevrazijskogo jazykovogo Sojuza. Reprinted in: Selected Writings I, 117-136.

34. _____ 1931 Über die phonologischen Sprachbünde, in S.W. I. 137-143.

35. _____ 1938 Sur la théorie des affinités phonologiques entre les langues. S.W. I, 234-246.

36. _____ 1961 Results of the Congress. Proceedings of the 9th International Congress of Linguistics, Mouton, 1962, 1135-42, especially p. 1139.

37. _____ 1967 C.G. Fant and M. Halle. Preliminaries to Speech Analysis. 7th printing. Cambridge, M.I.T. Press.

38. Kazazis, Kostas — 1965 — Some Balkan Constructions Corresponding to W. European Infinitives. Unpublished Ph.D. Thesis, Indiana University, Bloomington.

39. _____ — 1967 — On a Generative Grammar of the Balkan Languages. Foundations of Language. 3.117-123. Dordrecht.

40. Klein, S. — 1966 — Historical Change in Language Using Monte Carlo Techniques. Mechanical Translation, Vol. 9.

41. _____ — M.A. Kuppin and K.A. Meives, 1969. Monte Carlo Simulation of Language Change in Tikopia and Maori. Third International Conference on Computational Linguistics, Sånga-Säby, Sept. 1969 (preprint No. 21).

42. Kloss, Heinz — 1966 — Types of Multilingual Communities, a discussion of ten variables. Sociological Inquiry 36.2

43. Labov, William — 1966 — The Social Stratification of English in New York City. Washington, D.C., C.A.L.

44. Ma, Roxana and Herasimchuk, Eleanor — 1968 — Linguistic dimensions of a bilingual neighborhood. In: Fishman 1968. 636-835.

45. Mackey, W.F. — 1953 — Bilingualism and Linguistic Structure. Culture 14: 143-149.

46. _____ — 1962 — The Description of Bilingualism, CJL, 7.2: 51-85.

47. _____ — 1965 — Bilingual Interference: its Analysis and Measurement, The Journal of Communication, 15.4: 239-249.

48. _____ 1969 Concept Categories as Measures of Culture Distance, CIRB, U. Laval.

49. Neiescu, Petru 1965 Recherches dialectales chez les Roumains Sub-Danubiens. Revue roumaine de linguistique, Vol. 10.229-238.

50. Olsson, Gunnar 1965 Distance and Human Interaction. Regional Science Research Institute, Philadelphia (Bibliography Series No. 2).

51. Papaevgheniou, A. . 1945 Voreios Hellas:Meionotites apo Statistikis apopseos en skhesei me ton plithysmon kai tin ekpaidheusin. Thessaloniki.

52. Pavlović, Milivoj 1958 Les processus balkanistiques et la perspective du parler serbe de Prizren. Orbis 7:46-53.

53. Petrovici, E. and Neiescu, P. 1965 Persistence des îlots linguistiques. Constatations faites à l'occasion de nouvelles enquêtes dialectales chez les istro-roumains, méglénoroumains et aroumains. RRL, X-4

54. Rapoport, Anatol 1951 Nets with distance bias, Bulletin of mathematical biophysics, XIII, 85-91.

55. _____ 1953a Spread of information through a population with socio-structural bias: I. Assumption of transivity, Bulletin of matnematical biophysics, XV, 523-533.

56. _____ 1953b Spread of information through a population with socio-structural bias: II.Various models with partial transitivity, Bulletin of mathematical biophysics, XV, 535-546.

57. Récatas, Basile — 1934 — L'état actuel du bilinguisme chez les Macédoroumains du Pinde et le rôle de la femme dans le langage. Paris, Droz.

58. Rubin, Joan — 1968 — National Bilingualism in Paraguay. Mouton, The Hague.

59. Sandfeld, K. — 1932 — Linguistique balkanique: Problèmes et résultats. Paris.

60. Sankoff, Gillian — 1968 — Social Aspects of Multilingualism in New Guinea. Ph.D. Thesis, McGill University, Montreal.

61. Stouffer, Samuel — 1940 — Intervening opportunities: a theory relating mobility and distance. American Sociological Review, 5. 845-867. (Reprinted in: Stouffer 1962:69-91).

62. _____ — 1960 — Intervening opportunities and competing migrants. Journal of regional science, 2:1-26. (Reprinted in Stouffer 1962: 91-112).

63. _____ — 1962 — Social Research to Test Ideas. Glencoe, Illinois, The Free Press.

64. Širokov, O.S. — 1964 — Voprosy balkanskogo vtoričnogo jazykovogo rodstva (primenenije Statistiki v diaxroničeskoj fonologii), in Problemy sravnitel'noj grammatiki indojevropejskix jazykov. Naučnaja sessija. Tezisy dokladov. Moscow. 68-69.

65. Trubetzkoy, N.S. — 1928 — Proposal 16 in First International Congress of Linguists, Actes p. 17 f.

66. Wace, A.J.B. and Thompson, M.S. 1914 The Nomads of the Balkans. An Account of Life and Customs among the Vlachs of Northern Pindus. Methuen & Co., London.

67. Weinreich, U. 1953 Languages in Contact. New York.

68. _____ 1957 Research Frontiers in Bilingualism Studies. Proceedings of the 8th International Congress of Linguistics, 786-810. (Including discussion.)

69. _____ 1958 On the compatibility of genetic relationship and convergent development. Word 14, 374-379.

religion: ORTHODOX CHRISTIAN

language / Ethn.group	Alb.	Arum.	Gk.	Slav.	Turk.	Oth
Alb.						
Arum.						
Gk.						
Slav.						
Turk.						
Other						
Arab.						

religion: CATHOLIC CHRISTIAN

language / Ethn. group	Alb.	Arum.	Gk.	Slav.	Turk.	Other	Ar
Alb.							
Arum							
Gk.							
Slav							
Turk							
Othe							
Arab							

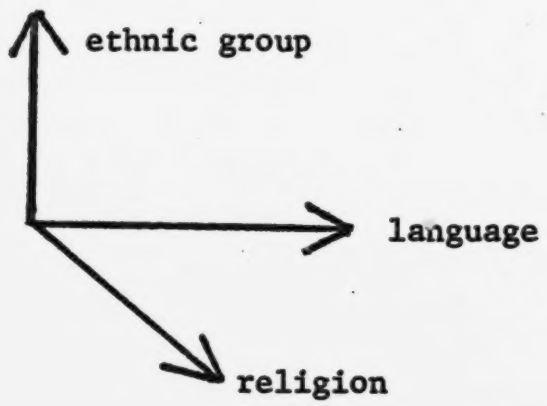
religion: MOSLEM

language							
Et							
Al							
Ar							
Gk							
Sl							
Tu							
Ot							
Ar							

religion: JEWISH

language / Ethn.group	Alb.	Arum.	Gk.	Slav.	Turk.	Rum.	Ara
Alb.							
Arum.							
Gk.							
Slav.							
Turk.							
Other							
Arab.							

In this illustration several matrices are shown which define a three dimensional space:



In similar fashion can be represented domains, role, relations or any other variables.

language X ethnic group

Place : Prizren

Year : 1958 -

Official State: Yug. Fed. Pop. Rep.

lang. / ethn. group	Alban.	Arum.	Gk.	Slav.	Turk.	Other (Gypsy)	Arab.
Alban.	X			X	X		
Arum.		X	X	X	X		
Gk.							
Slav.				X			
Turk.	X			X	X		X
Other (Gypsy)							
Arab.							

Source: Pavlović (1958)

Notes : Slav. = Makedonski or Serbian

Domain - Language

Key matrix

Ethnic Group : Arumanians

Place : Samarina

Year : (1911-)

Official State: Ottoman Empire

domain \ language	Alb.	Arum.	Gk.	Slav.	Turk.	Other (Rum.)	Arab.
State			X		X		
Religion		X	X			X	
Home		X					
School		X	X			X	
Profession (work)		X	X		X		
Mass media		X	X		X?	X	
Neighborhood		X					
Other (locale)							
Other ( )							

Source: Wace and Thompson (1914)

Note: Religion and School in both Gk. and Daco-Rumanian; D-Rum. usage introduces a diglossic element (in Ferguson's usage).

Domain Blow-up

Ethnic group : Arumanians

Place : Samarina

Year : 1911 (from 1815 to-)

Official State: Turkish State (Ottoman Empire)

	Alb.	Arum.	Gk.	Slav.	Turk.
State			X		X

ruling group	Alb.	Arum.	Gk.	Slav.	Turk.
					X
official lang.					(X?)
legal docum.			X		
transactions with authorities			X		(X?)
other (public speech)			X		

Source: Wace and Thompson (1914:70,155)

Notes : "One Sunday we heard a young Turk officer make a speech in Greek to the assembled village after Church on the benefits and ideals of the Ottoman Constitution." (70).

"... one man Yannuli al Miha al Hadzhi, ... was... recognised by the government as the headman of the village.... He is said to have used the following phrase: -Ὁ τῆς Σαμαρίνης Προεστῶς Γιαννοὺλης Μίχου βεβαιῶ διὰ τὴν Κοινότητα..." (p. 155).

Domain-Blow-up

Ethnic group : Arumanians

Place : Samarina

Year : 1911 (from 1815 to-)

Official State: Turkish State (Ottoman Empire)

home	Alb.	Arum.	Gk.	Slav.	Turk.	Other	Arab.
fa. - mo.		X					
fa. - ch.		X					
mo. - ch.		X					
ch. - ch.		X					

Source: Wace and Thompson (1914).

Note: The reverse could also be indicated:
mo. - fa., ch. - fa., ch. - mo., etc.

lang. X ethnic group

Place : Šar Planina

Year : 1959 -

Official State: Yug. Fed. Pop. Rep.

lang. / Ethnic group	Alban.	Arum.	Gk.	Slav.	Turk.	Other ( )	Arab.
Alban.	X			X			
Arum.							
Gk.							
Slav.							
Turk.							
Other ( )							
Arab.							

Source: Golab (1959:423)

Notes : "...all Albanian men from the age of fifteen know the Macedonian dialect or the Serbian language... and use it in linguistic communication with the Mac. Slav. popul., above all in the pazar (market) or as the hired shepherds... Albanians have no prestige..."

Intermarriage
ethnic group-ethnic group

Place : West Macedonia (Yug.)

Year : (From the 19th cent. (end) on)

Official State: (Yug. Fed. Pop. Rep.)

ethn. gr. / ethn. gr.	Alban.	Arum.	Gk.	Slav.	Turk.	Other (Gyps.)	
Alban.	X	/	/	/	/	/	/
Arum.		X					
Gk.							
Slav.	X	X		X			
Turk.					X		
Other (Gypsy)							

Source: Gołąb (1959: 423, 427)

Notes : Alb.- Slav. Moslems marry in villages close to Alb. villages.
This matrix could be divided male - female for the two sets of cells.

Intermarriage
ethnic group-ethnic group

Place : Prizren

Year : 1958 -

Official State: (Yug. Fed. Pop. Rep.)

ethn. gr. / ethn. gr.	Alban.	Arum.	Gk.	Slav.	Turk.	Other (Gyps.)	
Alban.	X	/	⁚	/	/	/	
Arum.		X					
Gk.							
Slav.		X		X			
Turk.					X		
Other (Gypsy)							

Source: Pavlović (1958:49)

Notes :

SKETCH MAP OF THE SOUTHERN BALKANS

THE PRINCIPAL VLACH AREAS ARE INDICATED BY DOTS

Reproduced from Wace and Thomson
Nomads of the Balkans.